IN THE SPECIFICATION:

Amend page 10,line 13-page 17,line 3 as follows:

Basically, the quick set volume adjustment mechanism 22 comprises a volume setting member 32 for limiting upward axial movement of the plunger unit 20 in the housing 12 to define the volume setting for the pipette 10. In the present invention, the volume setting member 32 preferably is supported for axial movement in the housing 12 only in response to a user turning of a volume adjusting member 33. In this regard, a turning of the volume adjusting member 33 activates operation of either a coarse volume setting means 34 or a fine volume setting means 35. The coarse volume settings means 34 is supported in the housing 12 such that when activated, a relatively small turning of the volume adjusting member 33 produces a relatively large axial movement (i.e. coarse adjustment) of the volume setting member 32. Similarly, the fine volume setting means 35 is supported within the housing 12 such that when activated, a relatively large turning of the volume adjusting member 33 produces a relatively small axial movement (i.e. fine adjustment) of the volume setting member 32. Thus, by sequentially activating the ~~course~~ coarse and fine volume setting means 34 and 35 through a sequential turning of the volume adjusting member 33, a user of the pipette of the present invention is able to quickly and accurately set and reset the volume of the pipette simply by turning the volume adjusting member. In these regards, a sequential turning of the volume adjusting member 33 is defined as a turning of the volume

adjusting member which will sequentially activate the ~~course~~ coarse and fine volume setting means 34 and 35.

More particularly as to the pipette 10 illustrated in Fig. 1, the plunger unit 20 of the pipette is upwardly spring biased by a return spring 36 compressed between a piston return 38 and a bottom spring retainer 40. The upward bias provided by the return spring 36 causes the plunger unit 20 to move upwardly within the housing 12 until a flange member 42 fixed to the plunger engages a bottom or stop surface 32s comprising the volume setting member 32. In these regards, and as illustrated in Fig. 1, the volume setting member 32 of the pipette 10 comprises the lower end of a sleeve 44 having a hex-shaped axial bore 46 axially receiving a hex-shaped mid-portion 48 of the plunger 20. The sleeve 44 comprises the volume adjusting member 33 having an external fine thread 49t on a mid-portion 50 thereof. As most clearly shown in Figs. 6A-D, the thread 49t is designed to mate with an internal fine thread 51t on an upper end portion 51 of an axially extending tubular screw 52. The tubular screw 52 also includes a ~~course~~ coarse external thread 53t on a mid-portion 53 thereof mating with a coarse internal thread 54t on a tubular ~~course~~ coarse thread retainer 54 extending axially downward from a conventional volume lock 55 mounted within an open upper end 56 of the housing 12 of the pipette 10. As will be detailed hereinafter, in the embodiment of the present invention illustrated in Figs. 1-6, the mating external and internal fine threads 49t and 51t comprise the fine volume setting means 35 while the mating external and

internal coarse threads 53t and 54t comprise the coarse volume setting means 34 of the quick set volume adjusting mechanism 22.

Further, as shown in Figs. 1-4, the tubular screw 52 axially receives the sleeve 44 comprising the volume adjusting member 33 such that the volume setting member 32 extends below the ~~screw~~ lower end of the screw 52 to engage the flange 42 and function as the upper stop defining the volume setting for the pipette.

Also, the sleeve 44 steps radially outward above the fine thread 49t and extends vertically upward within the volume lock 55 with an inwardly projecting collar 57 slidably engaging the plunger 20 below the control knob 24. Thus configured, when the volume lock 55 is released, a turning of the control knob 24 will produce a like turning of the sleeve 44. Depending on the initial rotational position of the sleeve 44 relative to the screw 52, an initial turning of the sleeve may produce a turning of the sleeve relative to the screw with the threads 49t riding up or down on the threads 51t to produce a fine adjustment of the axial position of the volume setting member 32 by operation of the fine volume setting means 35. Alternatively, an initial turning of the sleeve 44 may produce a turning of the sleeve with the screw 52 with the threads 53t riding up or down on the threads 54t to produce a coarse adjustment of the axial position of the volume setting member 32 by operation of the ~~course~~ coarse volume setting means 34.

As indicated above, the initial rotational position of the sleeve 44 relative to the screw 52 will determine which of the coarse or fine volume setting means 34 or 35 is initially

operational. In this regard, for the embodiment of the quick set volume setting mechanism 22 illustrated in Figs. 1-4, the coarse volume setting means 34 is characterized by a force threshold for movement of the volume setting member 32. That threshold is only exceeded by a predetermined movement of the fine volume setting means 35 in response to a turning of the volume adjusting member 33. As illustrated for example in Fig. 2, a friction ring 58 is seated in an annular groove 59 in the coarse thread retainer 54 to bear against the screw 52 and prevent turning of the screw until the force threshold defined by the friction ring has been overcome. Thus, if the force threshold of the coarse volume setting means 34 is not overcome, an initial turning of the sleeve 44 (volume adjusting member 33) with the plunger unit 24 will cause the thread 49t to ride up or down on the thread 51t depending upon the direction of rotation of the volume adjusting member. This will effect a fine vertical adjustment of the volume setting member 32 and volume setting for the pipette 10, the screw 52 being held stationary by the friction ring 58. However, if the force threshold of the coarse volume setting means 34 is overcome, a turning of the volume adjusting member 33 will cause the screw 52 to turn with the volume adjusting member 33. Then, depending upon the direction of rotation of the volume adjusting member 33, coarse thread 53t of the coarse volume setting means 34 will ride up or down the coarse thread 54t on the retainer 54 to effect a ~~course~~ coarse vertical adjustment of the volume setting member 32 and volume setting for the pipette 10.

In the embodiment of the present invention shown in Figs. 1-4, the means for overcoming the force threshold of the coarse volume setting means 34 with a turning of the volume adjusting member 33 comprises a fine volume adjustment limiter 60 on a one of the volume adjusting member 33 or screw 52 and a shoulder 61 on another of the volume adjusting member 33 or screw 52. In Figs. 1-4 and 5A, the fine volume adjustment limiter 60 is shown as comprising a pin 60p extending radially outward from the sleeve 44 of the volume adjusting member 33 adjacent a lower end thereof. The pin 60p rides in an arc-shaped groove 61g in a lower end of the tubular screw 52 with opposite ends of the groove defining the shoulder 61 and a shoulder 61'. If, for example, the pin 60p is in the initial rotational position "3" in Fig. 5A against the shoulder 61, upon an initial turning of the volume adjusting member 33 in a counterclockwise direction to the position "4" in Fig. 5B, as by a turning of the control knob 24, the member 33 will overcome the force threshold defined by the friction ring 58 and the screw 52 and sleeve 44 will turn together in a counterclockwise direction with the member 33 to the rotational position indicated in Fig. 5B. With such movement, the ~~course~~ coarse thread 53t rides on the stationary ~~course~~ coarse thread 54t to effect a coarse adjustment of the vertical position of the volume setting member 32 and its stop surface 32s within the housing 12 and a ~~course~~ coarse volume setting for the pipette 10 as depicted by the upward movement of the screw 52 relative to the retainer 54 in Fig. 6D. If the pipette user then desires to more finely adjust the volume setting for the pipette 10, he or she may

simply turn the volume adjusting member 33 in a clockwise direction as by a clockwise turning of the control knob 24. Such movement of the volume adjusting member 33 will move the pin 60p away from the shoulder 61 and will cause the fine thread 49t to ride on the stationary fine thread 51t to effect a fine vertical adjustment of the volume setting member 32 and surface 32s within the housing 12 and a fine volume setting for the pipette.

If, however, the pin 60p is in the initial rotational position "1" in Fig. 5A against the shoulder 61', upon an initial turning of the volume adjusting member 33 in a clockwise direction, for example to a position opposite that indicated as "4" in Fig. 5B, the member 33 will also overcome the force threshold defined by the friction ring 58 and the screw 52 and sleeve 44 will turn together in a clockwise direction with the member 33. With such movement, the ~~course~~ coarse thread 53t rides on the stationary ~~course~~ coarse thread 54t to effect a coarse adjustment of the vertical position of the volume setting member 32 and its stop surface 32s within the housing 12 and a ~~course~~ coarse volume setting for the pipette 10. If the pipette user then desires to more finely adjust the volume setting for the pipette 10, he or she may simply turn the volume adjusting member 33 in a counterclockwise direction as by a counterclockwise turning of the control knob 24. Such movement of the volume adjusting member 33 will move the pin 60p away from the shoulder 61' and will cause the fine thread 49t to ride on the stationary fine thread 51t to effect a fine vertical adjustment of the volume

setting member 32 and surface 32s within the housing 12 and a fine volume setting for the pipette.

Amend page 18,line 11-page 20,line 4 as follows:

In any event, once the desired volume setting of the pipette has been achieved by a turning of the volume adjusting member 33 as described above, the user may set the desired volume setting for the pipette 10. This is accomplished by the user activating the volume lock 55 to secure the volume adjusting member 33 relative to the housing 12. In this regard, the conventional volume lock 55 illustrated in the drawings may comprise a lock knob 62 extending upwardly through the open end 56 of the housing 12. The lock knob 62 is supported such that an enlarged annular upper end 63 of the lock knob is located above a top of the housing 12 just below the control knob 24. The upper end 63 is designed for finger gripping by a pipette user when it desired to turn the lock knob 62 and release or activate the lock 55. In this regard, a plurality of circumferentially spaced arc-shaped vertical prongs 64 extend downward from the lock knob 62 each with an internal thread 64t engaging an external thread 65t on corresponding circumferentially spaced arc-shaped vertical prong 65 carried by the tubular retainer 54. For increased clarity, only one of each of the plurality of prongs 64 and prongs 65 is shown in each of Figs. 1-4. As illustrated, each prong 64 includes a downwardly and outwardly inclined cam surface 64c mating with an upwardly and inwardly inclined cam surface 65c on each prong 65. Also, an inner surface 65i of each prong 65 closely follows the cylindrical exterior of the radially enlarged portion of the sleeve 44 comprising the volume adjusting member 33. Thus constructed, when a pipette user desires to lock the

volume setting for the pipette 10, the user simply grasps and turns the lock knob 62 in a first direction such that cooperative action of the threads 64t and 65t and cam surfaces 64c and 65c wedge the inner surfaces 65i against the sleeve 44 locking the volume adjusting member 33 against turning within the housing 12. When a pipette user desires to release the lock 55 and adjust the volume setting for the pipette, the user simply grasps and turns the lock knob 58 in an opposite direction. Cooperative action of the threads 64t and 65t then separates the cam surfaces 64c and 65c and releases the inner surfaces 65i from the sleeve 44 thereby freeing the volume adjusting member 33 for turning in the housing to quickly and accurately adjust the volume setting for ~~he~~ the pipette in the manners previously described. Once the desired new volume setting has been achieved, the lock 55 is again activated as previously described readying the pipette 10 for operation in aspirating and dispensing sample fluids.

Amend page 30,line 24-page 32,line 19 as follows:

In the pipette 10' the means for overcoming the force threshold associated with the friction strip 87 and the coarse volume setting means 34', comprises means responsive to a predetermined turning of the fine volume setting means 35' with a turning of the volume adjusting member 33'. Specifically in the embodiment of the present invention shown in Figs. 9-11 and 14, the means for overcoming the force threshold of the coarse volume setting means 34' with a turning of the volume adjusting member 33' comprises a fine volume adjustment limiter 60' on a one of the volume adjusting member 33' or gear housing 85 and a shoulder 61' on another of the volume adjusting member 33' or gear housing 85. In Figs. 9-12, the fine volume adjustment limiter 60' is shown as comprising a pin 60p' extending upward from a horizontal plate 88 extending radially outward from the sleeve 44' of the volume adjusting member 33' just above the planet gears 83. The pin 60p' rides in an arc-shaped groove 61g' in a horizontal top 89 of the gear housing 85 with opposite ends of the groove defining the shoulders 61 and 61'. If, for example, the pin 60p is in the initial rotational position "3" in Figs. 12 and 13C against the shoulder 61, upon an initial turning of the volume adjusting member 33' in a counterclockwise direction to the position "4" in Figs. 12 and 13D, as by a turning of the control knob 24, the member 33' will overcome the force threshold defined by the friction strip 87. When this occurs, the gear housing 85, ring gear 84, screw 52', planet gears 83 and sun gear 81 will turn together with the member 33' in a counterclockwise direction to

the rotational position indicated in Fig. 13D. With such movement, the course thread 53t rides on the stationary course follower arm 80 to effect a coarse adjustment of the vertical position of the volume setting member 32' and its stop surface 32s' within the housing 12. This also effects a course volume setting for the pipette 10 as depicted by the upward movement of the screw 52' relative to the follower arm 80 in Fig. 14. If the pipette user then desires to more finely adjust the volume setting for the pipette 10', he or she may simply turn the volume adjusting member 33' in a clockwise direction as by a clockwise turning of the control knob 24. Such clockwise movement of the volume adjusting member 33' will move the pin 60p' away from the shoulder 61 and will produce a corresponding clockwise turning of the sun gear 81, as to the position "2" in Fig. 13B. As this occurs, the planet gears 83 will turn on the stationary ring gear 84 producing a turning of the screw 52' effecting a fine vertical adjustment of the volume setting member 32' and surface 32s' within the housing 12 and a fine volume setting for the pipette 10'.

Amend page 40,lines 11-19 as follows:

The embodiment of the present invention illustrated in Fig. 16 also includes a mechanical volume display system in a modified version of the pipette 10' indicated by the numeral 10". While the pipette 10" resembles the previously described pipette 10', it differs there from by the inclusion of an inverted version of the planetary gear mechanism 22" comprising the quick set system 22' and a modified volume setting member 32" comprising a screw 52" carrying a relatively fine external thread 53t".

Amend page 41,line 5-page 44,line 9 as follows:

As shown in Fig. 16, a friction ring 96 is captured between the planet gear carrier plate 82' and the gear housing 85' to define a force threshold for the coarse volume setting means ~~35"~~ 34" which must be overcome by a predetermined turning of the volume adjusting member 33' with an operational fine volume setting means ~~35'~~ 35" before the ring gear 84' is able to turn relative to the planet gears 83'. As in the prior embodiments, that force threshold is overcome by cooperative operation of a limiter 60" and shoulders 61".

As shown in Fig. 17, in the pipette 10" the limiter 60" comprises an inward stop 97 extending from an inside of the housing 12 to ride in an arc-shaped groove 98 in an outer surface of the gear housing 85' fixed to the ring gear ~~84"~~ 84', opposite ends of the groove defining the shoulders 61". In operation, when the sun gear 81', planet gears 83' and ring gear 84' are in the positions indicated in Fig. 17, the fine volume setting means 35" is operational and a turning of the volume adjusting member 33', as by a turning of the control knob 24 and plunger 20, will produce a turning of planet gears 83' and ring gear 84' as a unit to produce a corresponding turning of the sun gear 81'. Since the sun gear 81' is fixed to the screw 52", the screw 52" will turn slowly in a like manner with the fine thread 53t" riding on the stationary follower arm 80 to finely adjust the vertical position of the stop surface 32s' and hence the volume setting for the pipette 10".

Such fine adjustment of the volume setting for the pipette 10" will continue until the stop 97 engages one of the shoulders 61". When that occurs, the fine volume setting means 35" will be deactivated and the course volume setting means 34" activated. This occurs as a result of the stop 97 bearing on one of the shoulders 61" with a continued turning of the volume adjusting member 33' to overcome the force threshold defined by the friction ring 96 allowing the ring gear 84' to turn relative to the planet gears 83' with continued turning of the volume adjusting member 33'. As this occurs, the turning of the ring gear 84' by the volume adjusting member 33' produces a turning of the planet gears 83' to rapidly drive the sun gear 81'. This produces a more rapid turning of the screw 52" and a corresponding more rapid vertical movement or coarse adjustment of the screw 52" as the fine thread 53t" rides on the stationary follower arm 80 adjust the volume setting for the pipette 10".

As with the previously described embodiments of the present invention, such coarse adjustment of the volume setting of the pipette 10" may be followed by a fine adjustment of the volume setting. This may be accomplished simply ~~be~~ by a turning of the volume adjusting member 33' in an opposite direction. As this occurs, the stop 97 will move away from the shoulder 61" to deactivate the course volume setting means 34" and reactivate the fine volume setting means 35". With reactivation of the fine volume setting means 35", a continued turning of the volume adjusting member 33' in the opposite direction will result in the ring gear 84' and planet gears 83' turning as a unit to more

slowly turn the sun gear 81' and screw 52" to produce a fine adjustment of the vertical position of the stop surface 32s' within the housing 12 and a fine adjustment of the volume setting for the pipette 10" in the manner previously described.

In the pipette 10" of Fig. 16, the coarse and fine adjustment of the volume setting for the pipette is visually displayed by the illustrated mechanical display system. As shown, that system comprises a horizontally extending double ring gear 100 supported by the retainer 69 with an inwardly extending gear thereof mating with vertical splines (not shown) on the outer surface of the screw 52". Thus arranged, a turning of the screw 52" during the above described adjustment of the volume setting for the pipette 10" will produce a turning of the ring gear 100 with an outwardly extending gear thereof mating with spur gear counter wheel 102 of a standard wheel mechanical counter 104 including the wheel 102 and similar wheels 106 and 108. In a conventional manner, the counter wheels are constructed and assembled such that the wheel 102 will turn with the spur gear 100. The wheel 106 will turn one unit with each revolution of the wheel 102 while the wheel 108 will turn one unit with each revolution of the wheel 106, the wheels 102, 106 and 108 providing the unit's, ten's and hundred's indications for the digital display provided to a user of the pipette 10" by the counter 104 through a window 110 in the housing 12.